

THE GENUS *ANDROSTACHYS* PRAIN IN MADAGASCAR

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By the courtesy of the Director of the Paris Herbarium I have had the opportunity of examining all the material of *Androstachys* from Madagascar preserved in that institution. The existence in Madagascar of plants with digitate leaves, evidently related to *Androstachys*, has been known since the brief reference to them made by M. R. CAPURON in his *Essai Fl. Forest. Madag.* : 46, 100 (1957). Sterile or fruiting material had in fact been obtained long ago, by DU PETIT THOUARS in the last decade of the 18th century, by BOIVIN in 1849, and by BARON in 1891, but it is only within the last 20 years that adequate flowering material has come to hand. This has revealed the surprising fact that, despite the great differences in vegetative characters between these plants and *Androstachys Johnsonii*, in floral characters they are almost identical, and there can be no question of establishing for them a distinct genus. The floral similarity is somewhat disappointing, inasmuch as it had been hoped that the flowers of these Madagasean plants might perhaps have thrown light on the affinities of *Androstachys*. Unfortunately, too, three of the forms provisionally described below as "species" are only known from a single fertile collection each, and until further collections become available, to give some idea of the actual populations, the taxonomic status of these forms must remain in doubt. They are certainly closely inter-related.

KEY TO THE SPECIES

- Leaves simple, cordate or peltate; stipules free from petiole. . . *A. Johnsonii*
 Leaves digitately 3-7-foliolate; stipules adnate to petiole :
 Leaves without free petiole between stipules and leaflets; leaflets
 3-5 *A. merana*
 Leaves with long free petiole between stipules and leaflets :
 Leaves trifoliolate; stipules and capsules without long rufous
 hairs *A. imberbis*

Leaves 5(-7)-foliolate; stipules with long rufous hairs :

Mature capsules without long rufous hairs; petioles of
mature leaves sparingly rufous-pilose..... *A. viticifolia*

Mature capsules with long rufous hairs; petioles of mature
leaves coarsely rufous-pilose..... *A. rufibarbis*

1. *Androstachys Johnsonii* Prain

Bull. Misc. Inf. Kew 1908 : 438 (1908); Anon. (?Prain) in op. cit. 1909 : 201-4 (1909) & 1912 : 307 (1912); HUTCH. in DYER (ed.), Fl. Trop. Afr. 6 (1) : 741 (1912), 1019 (1913); PILGER & KRAUSE in ENGL. et PRANTL, Pflanzenfam., Nachtr. 4 : 168 (1914); HUTCH. in DYER (ed.), Fl. Cap. 5 (2) : 377 (1915); PAX & HOFFM. in ENGL., Pflanzenz. IV 147 xv : 287 (1922); PAX & HOFFM. in ENGL. & HARNIS, Pflanzenfam., ed. 2, 19 c : 75 (1931); GOMES & SOUSA, Dendrol. Moçamb. 1 : 103-9, c. tab. (1951); PARDY, Rhodes. Agric. Journ. 51 : 5 (1954); CAPURON, Essai Fl. Forest. Madag. : 100 (1957); LEANDRU in HUMBERT (ed.), Fl. Madag. fam. 111, 1 : 198 (1958); WHITE, For. Fl. N. Rhod. : 193 (1962); AIRY SHAW, Kew Bull. 18 : 251 (1965).
— *Weihia* (?) *subpeltata* SIM, For. Fl. Port. East Afr. : 66, t. 61 A (1909).

MADAGASCAR (W.) : Vallée moyenne du Mandrare près d'Anadabolava, Mont Volohitro, vers 850 m (sommet), forêt basse sclérophylle, déc. 1933, *Humbert 12679* : Petit arbre (4-6 cm). Nom. vernac. : 'oubato'. Ce nom m'a été donné ici pour une autre espèce également. — Massif gréseux de l'Isalo, à l'Ouest de Ranohira, dans les ravins (très rare), fév. 1955, *Capuron s.n.* : Arbre atteignant 10 m de hauteur et 0,50 m de diam. — Massif gréseux de l'Isalo, ravin de Fararotsy, au N.W. de Ranohira, 18 juin 1958, *Capuron 18576-SF* : Arbre pouvant atteindre de fortes dimensions. — Forêt de Zombitsy, à l'Est de Sakaraha, vers 700-800 m d'altitude, 20 juin 1958, *Capuron 18594-SF* : Grand ou très grand arbre atteignant près de 1 m de diamètre. — Massif de l'Isalo, ravin abrité des feux, au lieu dit Angebolava (à l'Ouest de Ranohira), 20 déc. 1961, *Capuron 29560-SF* : Arbre atteignant 25 m de hauteur et 0,50-1 m de diamètre.

So far as it goes the Madagascar material of *A. Johnsonii* agrees perfectly with that from the continent of Africa, but no ♂ flowers from Madagascar have yet been seen. In addition to the vegetative distinctions given in the key, the fruits of *A. Johnsonii* are smaller, smoother and more deeply lobed than those of the other species, with a finer and more evanescent indumentum, and the hairs on the anthers are sparser and paler.

2. *Androstachys merana* Airy Shaw, *sp. nov.*

Foliis (supra stipulas) quasi petiolatis (i.e. parte libera petioli supra stipulas nulla) 3-5-foliolatis, stipulis longe laxe pilosis, capsulis rostratis longe laxe pilosis distincta.

Arbor 10-20 m alta, ramulis cortice ruguloso cinereo-fusco obtectis, novellis ferrugineo-sericeis dein ochraceo-pilosis. Folia digitatim 3-5-foliolatis, petiolo 5-10 mm longo per totam longitudinem stipulato suffulta; foliola subaequalia, elliptico-oblongata, 2-4,8 cm longa, 0,5-1,2 (-2,2) cm lata, basi cuneato — angustata, apice acuta vel obtusa vel rotundata vel emarginata, interdum breviter vel longius mucronata, margine integro, tenuiter coriacea, supra minute pilosula, minute granulosa, siccitate viridula vel brunnescentia, subtus argenteo-sericea, lineis plicaturae saepe manifestis; costa subtus prominula, sericea, supra (saltem basin versus) etiam prominula, puberula; nervi laterales numerosi, patuli, immersi, valde inconspicui; petioliuli 1-2 mm longi; stipulae petiolo fere omnino adnatae,

apice breviter liberae sed connatae, petiolum per 1-2 mm excedentes, plerumque oblongae et semi-cylindricae, apice obtusae, brevissime cinereo-tomentellae et longe ochraceo-pilosae, rigide induratae, sibi diu arcissime valvato-adpressae, demum biantes et caducae. Inflorescentia ♂ e triade florum axillarium sistens, flore medio circiter 2 cm lateralibus circiter 1,5 cm longis (pedicellis 8-9 mm et 4-5 mm inclusis), rhachibus puberulis. Tepala 5-6, subspiraliter disposita, anguste oblonga vel lanceolata, 5-6 mm longa, 1-2 mm lata, subacuminata, acuta, parallele nervosa, extra longe rufo-strigosa, intus glabra, patentia vel reflexa. Stamina pernumerosa, densissime disposita, filamentis brevissimis, antheris lineari-oblongis 2 mm longis apice copiose rufo-barbatis. Flores ♀ solitarii, axillares, ex axillis oppositis exorti, pedicello 8-9 mm longo puberulo. Tepala 3 + 3, elliptica, 7-8 mm longa, exteriora 3 mm interiora 2 mm lata, acuminata, acuta, dorso longe rufo-pilosa vel cupreo-sericea, intus glabra. Ovarium ovoideum, 3 mm longum et fere aequilatum, triquetrum, tomentellum et longe rufo-pilosum, superne in stylum robustum rufo-pilosum 4 mm longum angustatum, stylo in ramos 3 valde contortos circiter 8 mm longos rufo-pilosos desinente. Capsula semi-matura (10 × 7 mm) ovoidea, rostrata, dense ochraceo-tomentella et longe laxe patentim fulvo-pilosa; matura oblongo-ovoidea, 2 cm longa, basi intrusa, rostrata, rugulosa, dense brevissime velutina, parcissime longe pilosa, endocarpio rigide lignoso intus nitido striatulo castaneo. Semina applanata, ovoidea, 9-10 mm longa, 6-7 mm lata, 2-3 mm crassa, basi rotundata, apice obtusa, minute carunculata, laevissima, nitidissima, rubro-brunnea.

MADAGASCAR (N.W.) : Diégo-Suarez, 1849, *Boivin 2785*. — Sine loc., 1891, *Baron 6431, 6441*. — Presqu'île d'Orangea, Diégo-Suarez, 4 juillet 1954, *Capuron 10520-SF*. — Environs d'Orangea, à l'Est de Diégo-Suarez, 18 oct. 1954, *Capuron 11325-SF*. — Forêt d'Orangea, près de Ramena, Diégo-Suarez, 13 févr. 1955, *Capuron 13011-SF*; *ibid.*, 20 mars 1955, *Capuron 13012-SF*; *ibid.*, sur sables, (22 févr. 1962, *Capuron 20947-SF* : Arbre (atteignant ici 10-12 m). — Forêt de Sahafury (sur sables), bassin de la Saharaina, vers 200 m d'alt., 20 févr. 1962, *Capuron 20902-SF* : Arbre 10-20 m. — Forêt d'Anafondro, dans le bassin inférieur du Rodo, 26 févr. 1964, *Capuron 23335* (TYPE, P); *23336-SF* : Arbre de 10-15 m., à écorce très crevassée. Très abondant.

This is the most distinct and apparently the most abundant of the digitate-leaved species in Madagascar. The absence of a length of free petiole between the apex of the adnate stipules and the base of the leaflets, combined with the silvery sericeous indumentum of the lower leaf-surface, renders it easily recognisable. *Baron 6431* is exceptional in its broadly obovate leaflets, rounded or retuse at the apex (cf. *Kew Bull.* 18 : 252, 1965), but it must apparently be referred here.

3. *Androstachys imberbis* Airy Shaw, *sp. nov.*

Foliis petiolatis trifoliolatis, stipulis margine imberbibus, capsulis velutinis parce longe albido-pilosis vel epilosis distincta.

Arbor magna, ramulis cortice rugoso cinereo obtectis, novellis non visis. Folia digitatim trifoliolata, matura petiolo 2,5-3,2 cm longo gracili minutissime cinereo-tomentello pilis longis carente suffulta; foliola subaequalia, elliptico-oblongata, 3,5-5,5 cm longa, 10-16 mm lata, basi cuneato-angustata, apice obtusa vel rotundata, saepe mucronulata, margine integro, tenuiter coriacea, supra glabra, minute granuloso-chagrinata,

siccitate pallide purpureo-brunnescentia, subtus minute densissime cinereo-velutina, lineis plicaturae inconspicuis; costa subtus prominens, minute ochraceo-tomentella, supra angustissime insculpta; nervi laterales pernumerati, patuli, immersi, valde inconspicui; petioluli 2-3 mm longi; stipulae petiolo omnino adnatae (apice per 2-3 mm ab eo liberae et inter se connatae), obovatae, 12 mm longae, 5-7 mm latae, lignoso-induratae, extra minute cinereo-tomentellae, intus ochraceo-tomentellae, margine (nisi valde juveniles) ebarbatae, apice obtusae vel subacutae. Inflorescentia ♂ non visa. Flos ♀ non visus. Capsulae solitariae, axillares, pedicello robusto 2,5-3 cm longo 2,5 mm crasso tereti dense ochraceo-tomentello apice anguste disciformi-expanso suffultae, triloculares, sed integrae non visae, e valvis delapsis 2-2,2 cm longae, basi intrusae, apice subacutae, extra rugulosae, dense brevissime ochraceo-velutinae et sparse longe albido-pilosae, endocarpio crasse lignoso fere 2 mm crasso intus castaneo nitido dense striolato parce pilosulo, columella relicta 1,5 cm longa. Semina applanata, ovata, plano-convexa, 12-13 mm longa, 7 mm lata, 3 mm crassa, basi rotundata, apice subacuta et minute carunculata, brunnea, laevissima, nitidissima.

MADAGASCAR (NW) : Bassin de la Saharaina, forêt de Sahafary, 23 oct. 1951. *Capuron 11361 SF* (TYPE, P); Grand arbre. Nom. vernac. : 'merana'.

As far as can be judged from a solitary specimen, this differs from the remainder in its trifoliolate leaves and in the absence of long rufous hairs on the stipules. Long hairs are also sometimes lacking on the ripe capsules.

4. *Androstachys viticifolia* Airy Shaw, *sp. nov.*

Foliis petiolatis quinquefoliatis, stipulis margine rufo-barbatis, capsulis velutinis pilis longis rufis carentibus distincta.

Arbor 15-25 m alta, ramulis cortice rugoso fusco-cinereo obtectis, novellis ferrugineo-tomentellis. Folia digitatum quinquefoliolata (raro trifoliolata), petiolo 2-3 cm longo gracili primum ferrugineo-tomentello et longe piloso demum cinereo-tomentello fere piloso suffulta; foliola elliptico-oblancoolata, 3,5 cm (exteriora) usque 7 cm (medianum) longa, 1-1,8 cm lata, basi cuneato-angustata, apice rotundata vel minute emarginata et mucronata, margine integro, tenuiter coriacea, supra glabra, minute granuloso-chagrinata, siccitate castanea vel fusca, subtus minute densissime cinereo-velutina, lineis longitudinalibus plicaturae 2 notata (cf. *Erythroxylon*); costa subtus prominens, ferrugineo-tomentella, supra angustissime insculpta; nervi laterales pernumerati, patuli, immersi, inconspicui; petioluli 2-3 mm longi; stipulae petiolo omnino adnatae et apice connatae, ellipticae, 10-18 mm longae, 5-6 mm latae, petiolo fere omnino adnatae (apice per 2 mm liberae), extra minute cinereo-tomentellae, intus ferrugineo-tomentellae, margine longe ferrugineo-barbatae, apice obtusae vel subacutae. Inflorescentia ♂ non visa. Flores ♀ solitarii, axillares, sub anthesi non visi, e fructibus junioribus descripti. Pedicellus 1,5-2,5 cm longus, 1,5 mm crassus, saepe arcuatus, ferrugineo-tomentellus. Tepala 3 + 3, oblonga vel anguste elliptica, 8-10 mm longa, exteriora 3-5 mm, interiora 2 mm lata, subacuminata, acuta, patentia, extra puberula et strigosa, intus glabra et nitida, striato-nervosa. Ovarium ovoideum,

4-5 mm longum, 3-4 mm latum, dense breviter velutinum. Capsula immatura 10-12 mm longa et crassa, dense ochraceo-velutina, trilobularis, ut videtur leviter triloba, in stylum (manicum) usque 5 mm longum puberulum abrupte desinens (stigmatibus delapsis), tepalis persistentibus levissime accrescentibus suffulta.

MADAGASCAR (NW) : Forêt de Sahafary (sur sables), bassin de la Sahalaina, vers 200 m d'alt., 20 fév. 1962, *Capuron 20975-SF* (TYPE, P) : Grand arbre (15-25 m, sur 0,60-0,70 m de diamètre). Nom vernac. : 'merana'.

Distinguished by its 5-foliolate leaves, rufo-pilose stipules and complete absence of long hairs on the capsules.

5. *Androstachys rufibarbis* Airy Shaw, *sp. nov.*

Foliis petiolatis 5(-7)-foliolatis, stipulis dense longe rufo-barbatis, capsulis aurantiaco-velutinis longe rufo-pilosis distincta.

Arbor 25-35 m alta, ramulis cortice sublaevi fusco-cinereo obtectis, novellis dense longissime rufo-strigosis. Folia digitatim 5(-7)-foliolata (plantularum folia primaria 1-3-foliolata), matura petiolo 3-4 cm longo 1,5 mm crasso striato rufo-piloso immatura petiolo usque 12 cm longo suffulta; foliola elliptico-oblanccolata, 4 cm (exteriora) usque 6 cm (medianum) longa 1,5-2 cm lata (juniora usque 14,5 cm longa et 4,5 cm lata), basi cuneato-attenuata, apice obtusa vel emarginata et saepe mucronulata, margine integro, tenuiter coriacea, supra sub lente minute sparse albo-pilosula et granuloso-chagrinata, siccitate sordide purpureo-brunnescentia, subtus sub lente ctiam granulosa et minutissime densissime adpresse albido-puberula, lincis plicaturae nullis; costa subtus prominens, minute rufo- vel albido-puberula, supra angustissime insculpta; nervi laterales pernumerosi, patuli, immersae, valde inconspicui; petioluli 2-3 mm longi; stipulae petiolo omnino adnatae, apice ab eo per 3 mm liberae et sibi connatae, obovatae vel ellipticae, 11-14 mm longae, 6-7 mm latae, lignoso-induratae, extra dense minutissime fusco-tomentellae et longe rufo-pilosae, intus ut videtur glabrae, marginibus saepe approximatis, apice obtusae. Inflorescentia ♂ (ex exemplaribus in solum silvaticum delapsis tantum cognita) 2-4 cm longa (ignotum anne trias anne flos solitarius), rhachi (« pedicello ») basi per 1-2 cm nuda 1 mm crassa saepe flexuosa minute tomentella et rufo-pilosula. Tepala (vel bracteolae) 5-6, spiraliter approximata, anguste subulato-oblonga, 5 mm longa, 1 mm lata, acuta, subtus (dorso) glabra, supra longe rufo-pilosa. Antherae lineares, 2 mm longae, numerosissimae, dense dispositae, filamentis brevissimis suffultae, superne dense longe ferrugineo-barbatae. Flos ♀ non visus. Capsulae (vix maturae) solitariae, axillares, pedicello 2-4 cm longo 1,5-2 mm crasso minute cinnamomeo-tomentello suffultae, trilobulares, breviter trigono-ovoideae, 15-17 mm longae, 15-18 mm latae, tricoccae, coccis dorso obtuse carinatis, basi leviter intrusae, apice fere rotundatae, rugulosae, dense aurantiaco-tomentellae, parce longe pilosae, in columnam stylarem 4-5 mm longam 1,5 mm crassam trisulcatam tomentellam subito desinentes, stylis superne liberis glabris revolutis caducis. Semina matura non visa.

MADAGASCAR (E.) : Environ de la Baie d'Antongil, forêt sublittorale, au Sud de Rantabe, mars 1954, *Capuron 9177-SF* (TYPE, P) : Très grand arbre 25-35 m de hauteur, 0,60-1 m de diam., à bois très dur; dioïque. Nom vernac. : 'merana'.

The following sterile specimens with juvenile foliage are provisionally referred here.

MADAGASCAR : Sine loc. vel dat., *Thouars s.n.* — NW : Bassin de la Saharaina, forêt de Sahafary (Diégo-Suarez), 13 juin 1952, *SF 30 R 6* & *SF 2366*. — Belambo, près d'Antsahambaro, ctn. de Fanambana, Vohémar, 9 juillet 1955, *SF 20 R 309*.

The very strong development of rufo-pilose indumentum on the stipules and capsules is the main feature of this species. As with the two previous species, only one fertile specimen has been seen, and its taxonomic status must remain in doubt.

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